

REMARKS

Attached thereto is an Excess Claims Fee Letter and fee for three excess total claims.

Claims 1, 2, and 6-26 are all the claims presently pending in the application. Claims 3-5 are canceled above, and new claims 21-26 are added.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicant also notes that, notwithstanding any claim amendments herein or later during prosecution, Applicant's intent is to encompass equivalents of all claim elements.

The support for the phrase added in claims 1 and 2 is found at line 17 on page 6 of the specification. The specification support for the new claims is found particularly in the paragraph bridging pages 21 and 22.

Claims 6 and 7 stand rejected under 35 U.S.C. § 102(b) as anticipated by US Patent 5,850,126 to Kanbar. Claims 1-5, 8-11, 14-16, and 18-20 stand rejected under 35 U.S.C. § 103(a) and unpatentably over Kanbar, further in view of U.S. Patent 5,783,909 to Hochstein. Claims 12, 13, and 17 stand rejected under 35 U.S.C. § 103(a) and unpatentably over Kanbar, further in view of Hochstein, and further in view of U.S. Patent 6,236,331 to Dussureault.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

A first exemplary embodiment of the claimed invention, as defined by claim 1, is directed to a light emitting diode driving circuit that includes a control pulse signal generator for generating a control pulse signal having a variable duty factor adjusted in dependence on characteristics of the light emitting diode, a smoothing circuit for smoothing the control pulse signal to generate a control voltage, and a driving circuit for generating a driving voltage according to the control voltage and supplying a forward current to the light emitting diode.

The present invention overcomes problems of the conventional devices by providing a luminance controller that approximates the luminance change characteristics of a light emitting diode with the luminance change characteristics of a lamp.

II. THE PRIOR ART REJECTIONS

The Examiner alleges that Kanbar anticipates claims 6 and 7 and, when modified by Hochstein, renders obvious claims 1-5, 8-11, 14-16, and 18-20, and, when further modified by Dussureault, renders obvious claims 12, 13, and 17.

However, Applicant respectfully submits that the rejection currently of record fails to properly heed the plain meaning of the language of the claims, thereby inherently failing to meet the initial burden of a *prima facie* rejection.

First, relative to the rejection for claims 6 and 7, the Examiner may be entirely correct in describing Kanbar. However, this description is not what is being claimed in these claims.

That is, as clearly shown in Figures 4 and 5 and discussed at line 60 of column 3 through line 17 of column 4, Kanbar is designed specifically for a single pulse rate (e.g., a fixed pulse width between 2 to 10 microseconds, every 1/20 th of a second). Applicant submits that, to one of ordinary skill in the art, there is no intent in Kanbar to vary this fixed pulse rate to vary the brightness of the LEDs, let alone an intent to vary the pulse rate in order to match luminance change characteristics of a lamp.

In contrast, the present invention has an exemplary purpose to be used in environments in which the brightness will vary, and it is an aspect of the present invention that the user not be aware that an LED source is being used instead of an incandescent lamp. Therefore, the control circuit of the present invention uses techniques (e.g., adjusting a pulse signal in dependence on characteristic of the light emitting diode) to imitate characteristics of the controls for an incandescent lamp.

Kanbar has no corresponding control techniques and has no reason to incorporate such controls, since Kanbar does not include an input signal for adjusting the light output, let alone attempt to emulate the luminance change characteristics of an incandescent lamp.

Hence, turning to the clear language of the claims, in Kanbar there is no teaching or suggestion of: "... [a] light emitting diode driving circuit comprising: a luminance controller that approximates the luminance change characteristics of a light emitting diode with the luminance change characteristics of a lamp", as required by claim 6. Independent claim 7 has similar language.

For this reason, claims 6 and 7 are clearly patentable over Kanbar.

Second, relative to the rejection for claim 1, the rejection currently of record clearly fails to heed the plain meaning of the language.

That is, although the Examiner reasonably considers that pulse generator 23 in Kanbar corresponds to a "control pulse signal generator" and that the capacitor presumed to be present in regulator 21 of Kanbar corresponds to the "smoothing circuit" of the language in claim 1, the plain meaning of the claim language clearly requires that the smoothing circuit smooth the control pulse signal (e.g., the output of a "control pulse signal generator").

Applicant submits that the smoothing capacitor in the regulator 21 of Kanbar clearly does not smooth the output of the pulse generator 23. Therefore, Kanbar clearly cannot be used as a primary reference for the present invention, since its design and principle of operation would have to be changed to accommodate the plain meaning of the language. Such change in design or operation would contradict the guideline in MPEP §2143.01: "*The proposed modification cannot change the principle of operation of a reference.*"

The Examiner relies upon Hochstein as demonstrating a variable pulse width modulated power supply and, regardless of the propriety of modifying Kanbar to incorporate the temperature or intensity sensor 22, 24 of Hochstein in order to replace the fixed frequency pulse generator 23 of Kanbar, this modification would not overcome the basic deficiency of Kanbar in which no smoothing circuit exists for smoothing the output of the pulse generator 23.

However, to expedite prosecution, Applicant has further amended claim 1 to highlight the exemplary feature of the present invention as adapting the LED to imitate an incandescent lamp.

Applicant believes that the cited patent to Kanbar clearly fails to teach or suggest the features of claim 1, in particular, the newly recited feature of generating a control pulse signal having a duty factor adjusted in dependence on characteristics of the light emitting diode. In other words, the luminance change characteristics of a light emitting diode can be approximated to the luminance change characteristics of a lamp by generation of a control pulse signal based on the characteristics of the light emitting diode.

In the Office Action, the Examiner pointed out that Kanbar discloses a smoothing

circuit and a driving circuit for generating a driving voltage according to the control voltage and supplying a forward current to the light emitting diode.

However, the description of the present application already recited that these elements are conventional, for instance on line 11-12 of page 12. Applicant believes that the subject matter of the amended claim 1 is clearly patentable over the cited reference, in view of the above-described feature relating to the adjustment of the duty factor of the control pulse signal.

Hence, turning to the clear language of the claim, in Kanbar there is no teaching or suggestion for: "... a control pulse signal generator for generating a control pulse signal having a variable duty factor adjusted in dependence on characteristics of the light emitting diode; a smoothing circuit for smoothing said control pulse signal to generate a control voltage ...", as required by claim 1.

Therefore, claim 1 is clearly allowable over Kanbar and the remaining claims dependent thereto are also allowable, even if for no reason other than dependency.

Turning to the newly-added claims, the feature in claim 26 is based on the description, in particular, of the paragraph bridging pages 21 and 22.

Since claims 1 and 6 are clearly allowable over Kanbar and the cited references, Applicant submits that the remaining claims would be allowable, even if for no other reason than dependency. However, Applicant submits that there are additional deficiencies with the rejection currently of record and that claims are allowable for reasons other than dependency.

Relative to claim 10, Applicant submits that one of ordinary skill in the art would not agree that Kanbar/Hochstein would have two alternate mechanisms to control the switching circuit. It is noted that the Examiner's description of these claims is not what is being claimed.

Relative to claims 8 and 14-20, these claims depend upon claim 6 and, as noted above, Kanbar is based on a constant (fixed) frequency of pulses and does not attempt to imitate the changes of intensity of an incandescent lamp, thereby rendering moot any similarities with the prior art references.

Relative to claims 9-11, in addition to its dependence from claim 6, the rejection for these claims have the same deficiencies as identified above for claim 1.

Relative to claim 12, the Examiner's reliance upon the automatic adjustment in

Dussereault to provide a same level of intensity for the different colors of a traffic light is misplaced, since one of ordinary skill in the art would not agree that this automatic regulation of light intensity for three colors of a traffic light is the same concept as that of providing protection against overvoltage fluctuations of the voltage source that provides the power to the LED controller. Even if Dussereault were to be combined with Kanbar/Hochstein, the result would not provide the structure of claim 12.

Relative to claim 13, Dussereault teaches a technique to equalize intensity of the three-color LED lamps used in a traffic light. This is entirely different from precluding a sudden decrease in intensity in an LED's change characteristic that normally occurs at a specific voltage. The present invention includes a minimum voltage generator so that the LED intensity is maintained even if the control input voltage drops below the LED threshold, thereby ensuring that the LED's changes in intensity match the characteristics of an incandescent lamp.

Moreover, Applicant again submits that one of ordinary skill in the art would not reasonably be motivated to modify Kanbar to incorporate the deficiencies (conceded by the Examiner), absent impermissible hindsight, since the references are directed to completely different matters and problems.

Specifically, the Hochstein reference is directed to providing a luminous intensity controller for a light emitting diode which maintains the luminous intensity of the light emitting diode at a predetermined level in spite of temperature or intensity degradation(s), and Dussereault addresses a problem of equalizing intensity for all three lamps in a traffic light. In contrast, Kanbar addresses the problem of providing an LED-adaptor that can be screwed into an AC socket.

Therefore, relative to Dussereault, since Kanbar does not have three independent LED lamps, one of ordinary skill in the art would not be motivated to consider the teachings of Dussereault. Relative to temperature and age-related intensity fluctuations, the primary reference Kanbar does not suggest a problem related to either. Therefore, one of ordinary skill in the art, given Kanbar as the starting point, would not have a reason to look around for a method to compensate for temperature and age-related intensity fluctuations, absent hindsight.

The Examiner's motivation to modify Kanbar to overcome the conceded deficiencies become merely statements of the benefit to be derived if the modification were to be made. This technique of merely reciting the benefit of having made a modification would clearly render everything obvious.

It is pointed out that MPEP §2141.02 clearly states the following very basic evaluation guideline: *"In determining the differences between the prior art and the claims, the question under 35 U.S.C.103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious"* (emphasis in MPEP itself).

This guideline reflects the well established concept in patentability evaluation that a new invention may "merely" be a new and different combination of known elements.

Second, it is pointed out that MPEP §2143.01 clearly states a second guideline: *"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination"* (emphasis in MPEP itself).

Along these lines, Judge Rader wrote in the recent Federal Circuit Court of Appeals holding in *Ruiz v. A.B. Chance Co.*, Federal Cir., No. 03-1333, January 29, 2004:

"In making the assessment of differences, section 103 specifically requires consideration of the claimed invention "as a whole." Inventions typically are new combinations of existing principles or features. Env'tl. Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that "virtually all [inventions] are combinations of old elements."). The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result - often the very definition of invention."

Although the holding in that case left undisturbed, under the "clear error" standard of review, the conclusion of the District Court that the prior art references were properly combinable, it specifically explained that it declined to reverse this conclusion because "... the two references address precisely the same problem ... " (emphasis by Applicants)

This aspect of the *Ruiz* holding, in which precisely the same problem is being addressed by both references, is not present in Kanbar, Hochstein, and/or Dussureault.

Hence, contrary to the Examiner's allegations, Applicant submits that one of ordinary skill in the art would have no motivation to modify Kanbar, absent impermissible hindsight.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims 1-20.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 1, 2, and 6-26, all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

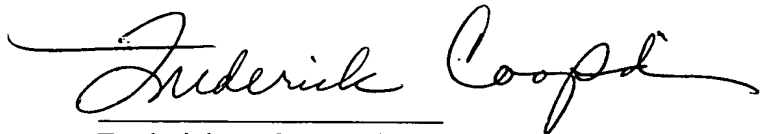
Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: _____

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